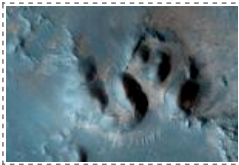




Short Sharp Science

October 21, 2008 10:54 PM

Should the next Mars rover 'follow the methane'?



The [detection of methane on Mars](#) in 2004 raised the tantalising possibility that the cold, dry planet now harbours life in the form of subsurface, methane-producing bacteria. Now, detailed observations suggest a way to potentially find any such life.

Nature News [reports](#) that observations made over the last four years show the gas is not spread evenly around the planet but concentrated in a handful of "hotspots".

The observations were reported at a planetary sciences meeting earlier this month by Michael Mumma of NASA's Goddard Space Flight Center in Greenbelt, Maryland. They show that methane clouds spanning hundreds of kilometres form over these hotspots and dissipate within a year - much shorter than the 300 years it was thought to take for atmospheric methane to be destroyed by sunlight. If methane is being destroyed so quickly, it must be created at far higher rates than previously thought, Mumma said at the meeting.

He reported similar findings in 2005 (see our story about them [here](#)), but at the time other researchers were sceptical of those preliminary observations. Now, the case for concentrated methane seems to be a lot stronger. "This is a big deal," Sushil Atreya of the University of Michigan told Nature.

Importantly, one of the hotspots, Nili Fossae (pictured), is one of the possible landing sites for the [Mars Science Laboratory](#), a huge rover due to begin its journey to the Red Planet next year.

It is not, however, one of the top picks - last month scientists gave priority to [three other possible landing sites](#), all craters thought to have once held water.

But the new observations might cause Nili Fossae, a fracture that has been eroded and partly filled in by sediments and clay-rich ejecta from a nearby crater, to rise in the rankings. "We're going to take this very seriously," MSL project scientist John Grotzinger of Caltech told Nature. The new results might be factored into a landing site meeting in early November, the story reports.

Grotzinger says he needs to see hard data to seriously consider reshuffling MSL's landing target choices. But if the MSL team decides to send the rover to Nili Fossae, the search for life on Mars could heat up very quickly. That's because MSL can detect the ratio of carbon isotopes in methane - so if Martian methane is rich in carbon-12, as is life on Earth, it might tilt the scales in favour of a biological [origin for the gas](#).

What do you think - should MSL follow the methane?

Maggie McKee, space editor (Image: NASA/JPL/University of Arizona)

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Posted by Maggie McKee at October 21, 2008 10:54 PM | [Permalink](#) | [Comments](#) (5) |

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holes on Mars. If it was once like Earth, with surface water and an atmosphere capable of generating rain and what not... then there must be a good number of underground passage ways and caves which descend into the martian crust. It would be very exciting to explore such a thing is at all possible, no?

By Joe Sheehy on [October 22, 2008 12:21 AM](#)

One of the more frustrating things is that we spend years and years designing and sending successive robot missions to Mars to answer questions that a team of human scientists could settle in an afternoon - if we sent them to Mars instead.

The methane makes me think that we either have life on Mars, or some exotic and unexplained chemistry going on - either way, it must be worth exploring.

By Dan Ibekwe on [October 22, 2008 12:58 AM](#)

HI!!!!!!!!!!

IM Joemar.....

I THINK MARS IS IN THE STAGE OF DEVELOPING PLANET AND ALL I CAN SAY IS ALL LIVING THING IN MARS ARE ALSO DEVELOPING STAGE...

PLZZ COMMENT IF I HAV WRONG IN MY THEORY...

THANK U...

By jOemaR on [October 22, 2008 8:43 AM](#)

wat u think is wrong.....

mars is far older planet then earth....

it lost its atmosphere due the reasons which i dont know...

By ricky on [October 22, 2008 11:06 AM](#)

Ricky, all the planets in the solar system are the same age. Mars lost its atmosphere due to losing its protective magnetic field - presumably this was due to the core solidifying since Mars, being smaller, loses heat more easily than Earth.

Joemar, as far as I know there is no evidence against the idea that life is just beginning on Mars, but also no evidence in favour.

By Dan on [October 22, 2008 1:29 PM](#)

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